

the mutant comprising an amino acid substitution in an N-terminal alpha helix, in a domain B beta strand comprising residues 41 through 47 of SPE-A at a cysteine, or a combination of such substitutions,

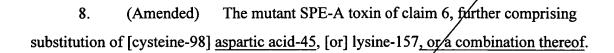
wherein the mutant [has at least one amino acid change and] is substantially nonlethal compared with a protein substantially corresponding to wild type SPE-A toxin.

3. (Amended) [A] <u>The</u> mutant SPE-A toxin [according to] <u>of</u> claim 1, wherein the mutant SPE-A toxin comprises one to six amino acid substitutions; and

wherein at least one of the substituted amino acids is asparagine-20, <u>leucine-41</u>, <u>leucine-42</u>, aspartic acid 45, lysine-157, or cysteine-98.

- 4. (Amended) The mutant SPE-A toxin of claim 3, wherein the at least one amino acid substitution comprises the substitution of asparagine-20 to aspartic acid, glutamic acid, lysine or arginine; the substitution of leucine-41 to alanine; the substitution of leucine-42 to alanine; the substitution of cysteine 98 to serine, alanine, glycine, or threonine; the substitution of lysine-157 to glutamic acid or aspartic acid; or the substitution of aspartic acid-45 to asparagine, glutamine, serine, threonine, or alanine.
- 5. (Amended) The mutant SPE-A toxin of claim 4, wherein the at least one amino acid substitution comprises asparagine-20 to aspartic acid, leucine-41 to alanine, leucine-42 to alanine, cysteine 98 to serine, aspartic acid-45 to asparagine, or lysine-157 to glutamic acid.
- 6. (Amended) The mutant SPE-A toxin of claim 3, wherein the at least one amino acid substitution comprises substitution of asparagine-20, of cysteine 98, or a combination thereof.
- 7. (Amended) The mutant SPE-A toxin of claim 6, wherein the substitution is asparagine-20 to aspartic acid, cysteine 98 to serine, or a combination thereof.





The mutant SPE-A toxin of claim 8, wherein the substitution is 9. (Amended) [cysteine 98 to serine] aspartic acid-45 to asparagine, or lysine-157 to glutamic acid, or a combination thereof.

Please add and consider new claims 19-31/as follows

- 19. (New) A mutant SPE-A toxin comprising amino acid substitution at residue asparagine-20, leucine-41, leucine-42, aspartic acid-45, cysteine-98, or a combination thereof.
- 20. (New) The mutant SPE-A toxin of claim 19, comprising amino acid substitution of residue asparagine 20 to aspartic acid, leucine-41 to alanine, leucing-42 to alanine, aspartic acid-45 to asparagine, cysteine-98 to serine, or a combination thereof.
- 21. (New) The mutant SPE-A toxin of claim 20, comprising amino acid substitutions asparagine 20 to aspartic acid and cysteine-98 to serine.
- (New) The mutant SPE-A toxin of claim 20, comprising amino acid substitutions 22. asparagine 20 to aspartic acid, aspartic acid-45 to asparagine, and cysteine-98 to serine.
- (New) The mutant SPE-A toxin of claim 19, further comprising amino acid 23. substitution at residue lysine-157.
- (New) The mutant SPÉ-A toxin of claim 23, comprising amino acid substitutions 24. lysine-157 to glutamate and asparagine 20 to aspartic acid.
- 25. (New) The mutant SPE-A toxin of claim 19, wherein the mutant has at least one of the following characteristics: the mutant has a decrease in mitogenicity for T-cells, the mutant